

11/10/78

PERRY NUCLEAR POWER PLANT - PERRY UNITS 1 & 2
 PROJECTED QUANTITIES FOR UNIT 1 & COMMON FACILITIES

BULK QUANTITY STATUS @ OCTOBER 31, 1978

	TO DATE QUANTITY	QUANTITY, COMPARISON & UNIT #1	% COMP.	UNITS 1 & 2	% COMP.
Struc. Concrete	233,843 cy	251,200	93.09%	398,400 cy	58.70%
Large Bore	31,500 lf	193,200	16.3%	338,000 lf	9.32%
Small Bore	1,500 lf	170,300	0.88%	298,000 lf	0.50%
Cable Tray	1160 lf	84,500	1.37%	120,000 lf	0.97%
* Conduit	- 0 -	692,000	0.0%	1,025,000 lf	0.0%
* Cable	- 0 -	6,425,000	0.0%	9,500,000 lf	0.0%
* Terminations	- 0 -	216,000	0.0%	319,000 cg	0.0%

BULK DISTRIBUTION

	UNIT #1	COMMON	SUB-TOTAL	UNIT #2	TOTALS
Struc. Concrete	147,200	104,000	251,200	147,200	398,400 cy
Large Bore	145,300	47,900	193,200	144,800	338,000 lf
Small Bore	128,100	42,200	170,300	127,700	298,000 lf
Cable tray	35,500	49,000	84,500	35,500	120,000 lf
* Conduit	333,000	359,000	692,000	333,000	1,025,000 lf
* Cable	3,076,000	3,349,000	6,425,000	3,075,000	9,500,000 lf
* Terminations	103,000	113,000	216,000	103,000	319,000 cg

* Power control and instrumentation wire

11/14/78

PERRY NUCLEAR POWER PLANT - Perry Units 1 & 2

SCHEDULED QUANTITIES @ UNIT #1 FUEL LOAD

BULK QUANTITY STATUS @ OCTOBER 31, 1978

 $\frac{1}{100} - \frac{0}{95} - \frac{2}{82}$ - projected unit completion @ Unit #1 F.L.

	INSTALLED TO DATE	REQ'D FOR UNIT #1 F.L. <small>100-95-82</small>	% Comp	REQ'D FOR TOTAL PROJ. <small>100-95-82</small>	% Comp.
* Struct. Concrete	233,843	369,000 <small>100-95-82</small>	63.37%	348,439	58.69%
Large Bore	31,500	313,000 <small>100-95-82</small>	10.06%	338,000	9.32%
Small Bore	1,500	259,000 <small>100-95-82</small>	0.58%	298,000	0.50%
Cable Tray	1160	109,000 <small>100-95-82</small>	1.06%	120,000	0.97%
* Conduit	-0-	889,000 <small>100-95-82</small>	0.0%	1,025,000	0.0%
* Cable	-0-	7,435,000 <small>100-95-82</small>	0.0%	9,500,000	0.0%
* Terminations	-0-	245,000 <small>100-95-82</small>	0.0%	319,000	0.0%

* Excludes porous, conduit encasement, guard house, warhouse & temp. const.

* Includes power, control and instrument only

NRC SITE VISIT
PERRY NUCLEAR POWER PLANT
NOVEMBER 14, 1978

INTRODUCTION	<i>Ray</i> G. W. GROSCUP
PURPOSE OF VISIT	NRC
MODEL TOUR	K. PECH
SITE TOUR	E. RILEY
LUNCH BREAK	
OVERVIEW OF PROJECT ORGANIZATION	G. W. GROSCUP
DESIGN AND ENGINEERING MANAGEMENT AND STATUS	<i>al</i> A. KAPLAN
PROCUREMENT MANAGEMENT AND STATUS	<i>Jim</i> G. H. LOCKWOOD
SCHEDULING METHODS	<i>Jim</i> J. ROBERTS
CONSTRUCTION PROGRESS, SCHEDULES, MILESTONES	<i>Jim</i> R. E. BOALS
STARTUP MANAGEMENT AND PLANNING	<i>Jim</i> J. G. MARJENIN
DETAILED DISCUSSION OF CONSTRUCTION STATUS	ALL
SUMMARY AND CONCLUSIONS	NRC

(Conference call)

Ray Groscup & Jim Roberts called 12-11-77 regarding bulk quantities... may want meeting at end of January, 1979 after talking to Gerald Kelly and Squireman & people.

PERRY 142

11-14-78

Designs: Gilbert & Assoc.

Scheduled 83.1%

Actual 82.3%

Based on man hours

re-evaluated man hours - or 75.6% actual

Construction drawings:

based on drawings scheduled to be complete or completed

Total ^{design} 82.7

Design Scheduled 76.5%

Effective

Scheduled Design

Complete 73.5%

Procurement:

- Current steel hauler strike causing problems
- Cement could be problem with national shortages
- 93% valves ordered
- expect hanger problems
- Could be problems with wage & price control.
- hanger supplier is Pallard Piping (Pullman Piping) out of Pitt, Pa. - First '14 '79 expect to start receiving 400 hangers & anchors per month.
- Pullman Piping contract also has hanger contract who sub hangers to Pallard Piping

Scheduling:

Schedule updating done on monthly basis.

Total Project

Concrete:	464,000	Cuy
Struct Steel:	15,700	Tons
L. B. Pipe :	338,000	lft
S. B. Pipe :	298,000	lft
Cable tray :	120,000	lft
Conduit:	1,025,000	lft
Cable	9,500,000	lft
Typewriters	319,000	ea
Manhours	21,740,000	hr.

Scheduling (Cont'd)

- Piping Critical Craft (Pipe fitters)
- In progress to T-S schedule and deta base-schedule has been accepted.

Construction Status:

Revised Plan

Fuel Load Dates: New

old FLD

Unit 1 4-30-82

5-30-81

Unit 2 6-30-84

FSAR Submitted 3-31-80

Existing

Perry - 85 mo start const to C.O.

13 mo NRC

72 mo EQ Const duration

Yellow Book 84 mo

Recommended

84
13
74 To F.L.
74 mo To F.L. Perry - 72 mo + 12 mo start const to C.O.

Yellow Book 96 mo.

Percent per mo 1.6 - 1.7 %/mo

Construction Status (Cont'd)

~~Peak~~ Manhouse mid '79.

Peak pipe fitters early '80

Old Hydro ~~Aug~~ ^{Sept} '81 FL 6-82
9-81

	T-4	T-5 + 12 mo
Peak manpower	3170	2170
1" Pipe fitters	1190	625
Peak Mo. Progress	2.7%	1.8%

Cont. Manhouse	20.1 m	21.7 m
Efficiency	100%	94.3%
C. Post Manhouse	25%	5%

All crafts contracts come up for re-neg. next year.

10-78

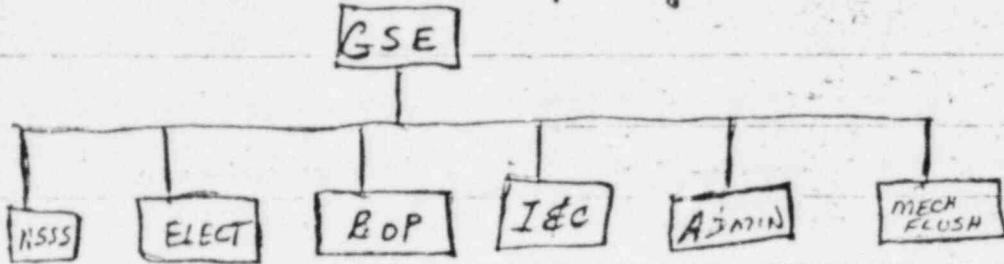
6-82
3-8MO

6-82
8-80 start keep testing (continued)

(5)

Start-ups (Preop)

New test & start-up engine (NTSO)



Total systems - 94 (30 safety related) needed for FL.

S-1-83	Perry 1	} C.O.
S-1-85	Perry 1	
S-1-85	Pearson Valley 2	
S-1-85	Perry 1	
S-1-85	Perry 2	

29.9% complete as of 11-1-78.

$\frac{21}{72}$	$\frac{63}{35}$
$\frac{29}{29}$	28
	$\frac{52}{30}$
	22

Submit FEAR 1-80
 FLO 6-82

UNIT #1 & Common	Status of 2-28-79		39.5% Unit 1 & 2 33% Common
	TOTAL	INSTALLED	
Concrete	237,400	184,080 (776)	74.6% ?
L.B. PIPE	276,700	77,318	27.9%
S.B. PIPE	175,300	3,961	2.3%
TRAY	87,200	13,516	15.5%
CONDUIT	692,000	450	0.1%
Cable	6,264,000	0	0%
Termination	221,000	0	0%
CIRCUITS	23,200	0	0%

***** N 1-79

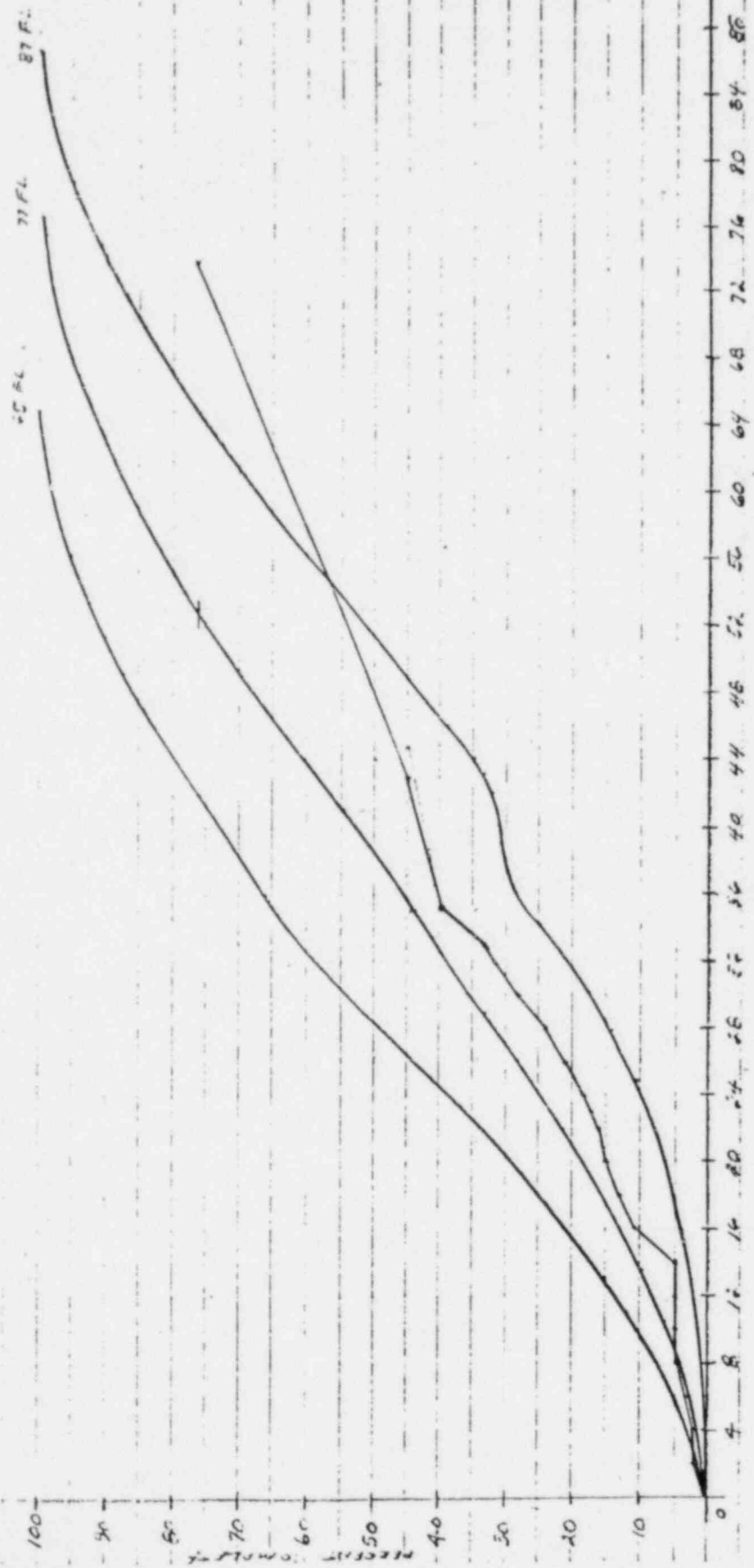
GRAND GULF 100 ~~251,000~~ (REVISED FORECAST) PER PERRY PEOPLE

Concrete	234,800
L.B. Pipes	263,000
S.B. Pipes	180,000
Tray	94,300
Conduit	420,000
Cable	6,273,000
Termination	287,000
Circuits	28,000

~ 750 Cable/week
 110 electricians

Concluded meeting that we, at the present time, thought 11-82/12-83 would be a realistic FLP. However, we would like to reevaluate in late Sept '79 or early Oct. '79. The applicant concurred.

4-20-77
9-31-31



ELAPSED TIME FROM FIRST CONCRETE



PIPING STATUS 10/31/79.

COMMON AND UN. 1

LARGE DOME

HANG

DESCRIPTION	SIZES		LF - IPE		WELDS		SPECIAL	
	TO DATE	EAC	TO DATE	EAC	TO DATE	EAC	TO DATE	EAC
PRIMARY BLDG PROCESS	3561	9706(est)	59491	143413 92	3066	16042	179	4639
92.93 YARD(SINS) Circ Water			21415	47855		2765		
GE USSS			0	1560		225		70
FIRE PROTECTION			1708	9640		1229		0
GE TURBINE			0	5200		750est.		
YARD FIRE PROTECTION LOOP			18292	18292				
YARD DRAINAGE			9506 2621	9506 2621				
STRUCTURAL CONTRACTS WHICH			11410	11410				
INSTALL EMBEDDED DRAINS			10272	15915				
			6073	6073				
			11975	11975				
			8228	8228				
			3387	3387				
			2390	2390				
TOTALS			166768	279870				
Rigid Hangers estimated	1 per 10	LF of pipe (based on 8" dia) less specials						

CONTRACT	DESCRIPTION	SPOOLS		LF
		TO DATE	EAC	TO DATE
44/A5	PRIMARY BLDG PROCESS	3561	9706(est)	5949
47, B1	92, 93 YARD (S&NS) Circ Water			2141
38	GE USSS			
48	FIRE PROTECTION GE Sprinkler			1700
43	GE TURBINE			
	LF LF			
13	YARD FIRE PROTECTION LOOP			1821
9	} YARD DRAINAGE			9506
15				2621
18	STRUCTURAL CONTRACTS WHICH INSTALL EMBEDDED DRAINS	-	-	11410
20		-	-	10272
21		-	-	6073
23		-	-	11975
24		-	-	8228
25		-	-	3387
36		-	-	2390
	TOTALS			166763
	Rigid Hangers estimated	1 per 10	LF of pipe (based on 8")	

PROCUREMENT STATUS

NOVEMBER 1, 1979

2-21 27
9-81 31 3/4

All the major equipment is ordered & the overall delivery status of materials for Perry as of November 1, 1979 is good, slow delivery of mechanical penetrations is the only significant delay affecting current construction and that situation should be corrected by year end.

Of lesser significance but a future problem, are delays which might be experienced in valve deliveries, particularly $2\frac{1}{2}$ inch and under and some instruments and controls. Most of the problem valves and instruments should be delivered in late 1980.

Material impacting basic construction, Rebar, Embeds, Containment Steel and Structural Steel are all in excellent shape, with 88% on site and the remainder forecast to complete ahead of need. The lead time for structural steel material delivery & fabrication is 14 weeks vs. 13 weeks a year ago. Those numbers exclude procurement cycle and shop drawing preparation & approval.

The delivery of large piping spools is good, running 600 per month with 79% either on site in fabrication or ready to ship, including most of Common and Unit #1. All the Yard Piping has been on site for some time.

Hanger shipments are fair, averaging 350 per month with 49% either on site, in fabrication or ready to ship.

Mechanical Equipment is in excellent shape, about 75% already on site including virtually all Pumps, Plenums, Ventilators, Dryers, Air Handling Units, Chillers, Fans, Tanks, Heaters, Heat Exchangers, Strainers, Cranes, Gates, Screens and Doors. The remainder should arrive ahead of need.

The Major GE Items are also in excellent shape, about 75% on site, including both RFV's with heads and internals.

AM/1/4

Turbine Generator Unit #1 is complete either on site or in storage off site and Unit #2 is nearing completion with much of it already stored off site.

Feedwater Pump Turbine, Start Up Transformers, Unit #1 Transformers, and PGCC termination cabinets are all on site. Unit #2 transformers and PGCC panels will begin shipping this year.

Penetrations are in fair shape. Unit #1, both Electrical and Mechanical, are essentially on site and Unit #2 will arrive ahead of need. The mechanical Penetration deliveries have been slow because of a combination things design changes, slow material procurement by fabricator & poor shop scheduling.

Electrical Equipment with the exception of Instruments and Controls is in excellent shape. All large Motors, 80% of the Cable, all Switchgear and Unit #1 Batteries, Battery Racks and Battery Chargers are on site. Instruments, 59% delivered, are behind schedule but getting enough attention now to permit recovery in 1980 & schedule adjustments puts us back on an attainable schedule.

Valves deliveries are in fair shape with only 40% on site including only 30% of the 2½ inch and under. Larger valves are in good shape, 74% on site but a significant number will ship in 1980, to support construction.

The small valve problem for us is characterized for us by a couple of Suppliers. One Supplier received an order for 2500 valves in July and has delivered 2475 (99%). By contrast the other Supplier has shipped only 62 valves since their strike ended in July.

The valve market is uncertain at this time. Increased demand is on the horizon but the question is when, depending on your prediction for the economy to rebound & the energy program to take a set course.

In the interim we see our ability to obtain valves being good right now because there is some shop space. The only catch is some manufactures are redefining their markets and/or restricting manufacturing to cut costs during the current economic upheaval. Also steel castings are 16 weeks vs. 15 weeks a year ago.

There are a number of major contracts up for negotiation in 1980 with steel being the major one that could affect us. However, our major steel requirements are behind us & strike impact should be minimal. The Engineering Negotiating Agreement will be put to a stern test year. It is my opinion fringe benefit issues will create local disagreement which will cause some local walkouts & cause some delivery problems.

Strikes are difficult to predict we had 16 Supplier strikes in 1978 and we have had 12 to date in 1979. In both years the steel haulers strike created the greater problems for us because it has a broad and hard effect on material deliveries. A teamsters strike stops deliveries to Suppliers as well as us and the effect is compounded. There is no national teamster contract negotiation in 1980 but there are always local contracts which can rise up and hurt us.

Forecasting deliveries is not a science. There are problems there will continue to be problems and we will continue to try and anticipate soft spots. Our view is that we will be able to support construction.

11/13/79

Progress Summary

PERCENTAGE

	FEB 1979	OCT 1979	Adj. June 50th	8 MONTHS	HY/PROX.
UNIT #1	36.0	45.6	(1.69) (1.1)	12.4	1.55 (1.2)
Command.	43.7	52.6	(7.15) 0.7	15.4	1.92 (1.1)
UNIT #1 & Command.	39.6	48.8	(4.21) (0.24)	13.7	1.71 (1.15)
UNIT #2	21.4	30.7	.28 0.1	8.9	1.12 (1.16)
TOTAL	33.4	42.5	(2.54) (0.28)	11.9	1.49 (1.1)

PERRY 142 11-14-79
 Unit 1 FLD 11-1-82 C.O. 11-1-83
 Unit 2 FLD 11-1-84 C.O. 11-1-85

% Complete 10-30-79 42.5% Total Project
 45.5% Unit 1

Electrical 18% Total Project
 Piping 18% Total Project

~~Observations~~

Procurement

Hanger 350 Mo. sup. 49% on site, shipped or ordered.
 bolts 80% on site
 Valve del. weak - market uncertain
 nuts 59% received

Contracts up for renegotiation - possible supplier strikes.

Engineering Status — 85% overall schedule 89%
 New locks ? working on

Test & Startups

peak in 1st 81-82 ¹⁴ 115 people

Current 63

First test 12-79

Total systems and/or subsystems 182 unit 1441 Comm

Procedure total 8.7% complete.

Current work force craft.

Electrician 335

Total welds

<u>ERC</u>
6458
<u>20720</u>
27178

<u>INST</u>
668
<u>2587</u>
3255

Safety

~~12%~~ 12%

Hangers (L.B)

3598
<u>3545</u>
7043

5
<u>206</u>
211

Safety

3% ~~12%~~

L.B. Pipes

60815
<u>181909</u>
242724

15774
<u>48359</u>
64133

26.4

11/14/79

CEI - NRC PERRY MEETING

GARY ANKNEY	LICENSING	CEI
JOHN MARJENIN	NUCLEAR TEST	CEI
GEORGE LOCKWOOD	PURCHASING	CEI
MURRAY EDELMAN	MGR - QA	1
GARY GROSCUP	MGR - NED	
STAN KRUMSKY	CUST ENGR	
DOV KWOZHUIZEN	Cost Control	-
EMANUEL RILEY	CONTRACTS	CEI
JAMES BILLINGS	Control Engg	
AL KAPLAN	SUPV. CONST. - NED	
C.C. WILLIAMS	Section Chief	<u>IF III</u>
J.E. KENKIN	NRC Region III.	
BL BARKLEY	Nuclear Design	CEI
L.S. RUBENSTEIN	CHIEF, LWR-4, NRC	NRC
ER STAHLER	NRC - NRC	
W.H. LOVELLACE	NRC/MPA	

45
53

11-79
11-83
7-23

34.9
.3
.1
3.9
.0
.1

5.4
44.7
45%

SS

45

30.7

Improved applicant at exit interview that we considered 7/83 to be an attainable FLD. However we felt that 7/83 is probably systematic.